

Everglades National Park Environmental Education



Learning. Growing. Leading.

An independent study evaluates how
The Everglades Environmental Education Programs
connect children with nature.

Inspiring future environmental stewards...

Everglades National Park has partnered with teachers since 1971 to deliver curriculum-based, environmental education programs to South Florida school children. More than 11,000 students visit Everglades National Park each year—many for the first time—on experiential field trips that:

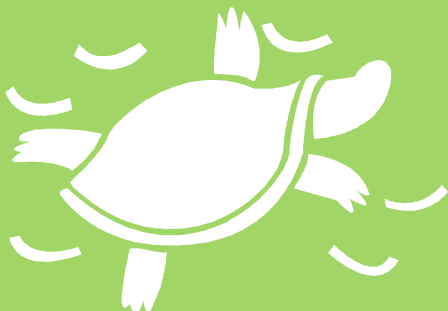
- Connect students to the natural world in an immediate and personal way.
- Encourage students to think critically about the Everglades and their environment.
- Foster a better understanding of the connection between the Everglades, the region's biodiversity, and their community's water supply.
- Bring students outdoors for healthy and recreational activity.
- Instill a sense of wonder and stewardship among students for the natural world.

Everglades Environmental Education Programs are place-based, interdisciplinary, and appeal to multiple learning styles. Programs include single-day field trips to the Royal Palm and Shark Valley areas of the park for 4th, 5th, and 6th grade students, as well as residential camping programs for 5th & 6th graders at the Hidden Lake and Loop Road Environmental Education Centers.

Rangers and teachers work together as educational partners, using science inquiry, props, demonstrations, and models to ensure that every student has an interactive, informative, and fun experience. Teachers attend mandatory workshops in the park to prepare students for their park adventure and to prepare themselves to co-teach the programs. They also lead classroom lessons before and after the park visit to enhance student learning, evaluate the education program, and conduct formal student assessments.

All programs are provided free of charge to schools, are curriculum-based, and help teachers meet state and national education standards, particularly in science and social studies. Program content emphasizes concepts taught in the classroom with real-world experiences in the park.

...one student at a time.



Measuring the Impact of Everglades Education Programs

"I love this Field Trip! Every year I go I enjoy it even more than the last and I can't wait to go again. I have been going to the Everglades since I was in elementary school and it thrills me that I can continue to do so." - Teacher

This is what Everglades Environmental Education Program staff hope to hear from program participants—that their visit has inspired them to learn more about the Everglades, to return to the Park, and to seek out other outdoor experiences.

Program staff know that students enjoy their time in the park and that the Everglades Environmental Education Program provides a powerful learning experience for students and teachers. The anecdotal evidence is overwhelming—teachers consistently praise the program, while students share stories that describe the sense of excitement and fresh insight they experience as a result of their Everglades adventure.

Everglades staff wanted to document the value and impact of the program, however, and asked Clemson University to conduct an independent study that examined the influence of Everglades environmental

education on students' knowledge, attitudes, and behaviors.

The study investigated the immediate impacts of the day and camping programs by surveying more than 900 4th, 5th, and 6th grade students from 33 schools, both three to five days before and one to two days after attending programs. The study also surveyed 47 teachers 10 days after the program regarding their perceptions of the influence on student learning outcomes. To investigate the long-term influences of attending Everglades camping programs, a small sample of alumni were surveyed.

The outcomes measured as part of the evaluation were chosen by park staff to reflect the overall goals for the environmental education programs at Everglades National Park.

The study, conducted in 2012, was funded by Toyota through a grant made to the South Florida National Parks Trust.



"As a college student I've taken classes like Botany and Environmental Science, classes I might not have taken had I not had the privilege of visiting the parks as a child." —Camping program alumnus

Measuring Outcomes

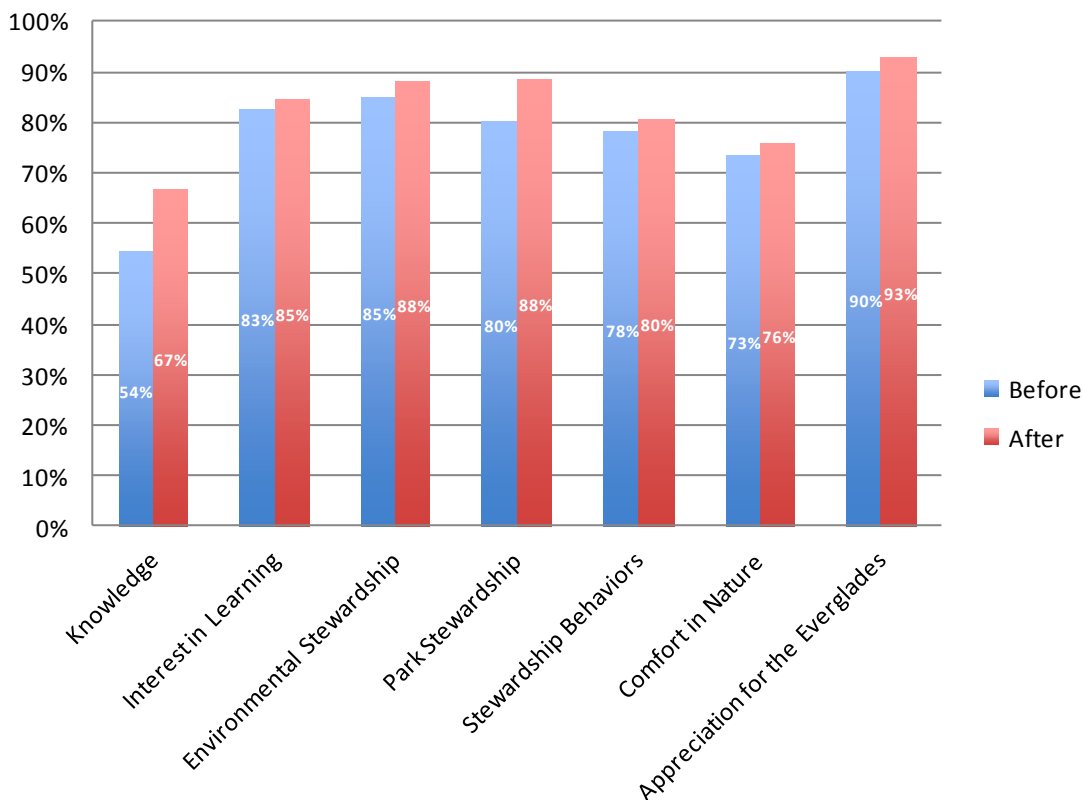
To measure the influence of Everglades Environmental Education Programs on a range of student outcomes, Clemson researchers measured the following concepts:

- I. **Learning Outcomes:** The study measured students' knowledge of and interest in learning about Everglades National Park and its cultural and natural resources.
- II. **Environmental Stewardship:** The study measured students' attitudes toward environmental responsibility, respect for their community and for the resources of Everglades National Park, as well as intentions to perform personal behaviors at home that conserve natural resources.
- III. **Connecting Students to Nature:** The study measured students' willingness to experience the usual discomforts when exploring Everglades National Park and appreciation, attachment, and caring for the Park's resources.

Results show:

- All student learning outcomes showed statistically significant increases after students participated in The Everglades Environmental Education Programs.

Significant Student Outcomes



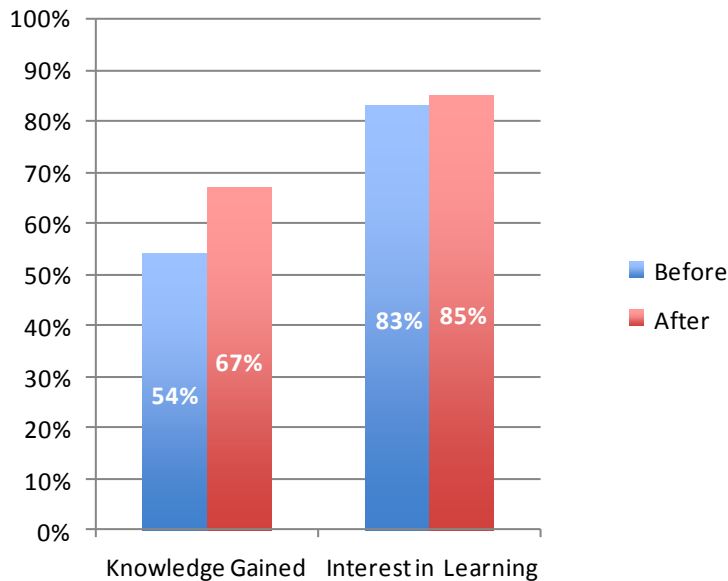
Results show:

- Day and camping programs had a significantly positive influence on students' appreciation for Everglades National Park, and on behaviors that protect park resources.

I. Learning Outcomes

The study found that students who took part in Everglades Environmental Education Programs knew more about the natural world around them—and many expressed interest in learning more after visiting the park.

Interest in Learning and Knowledge Gained

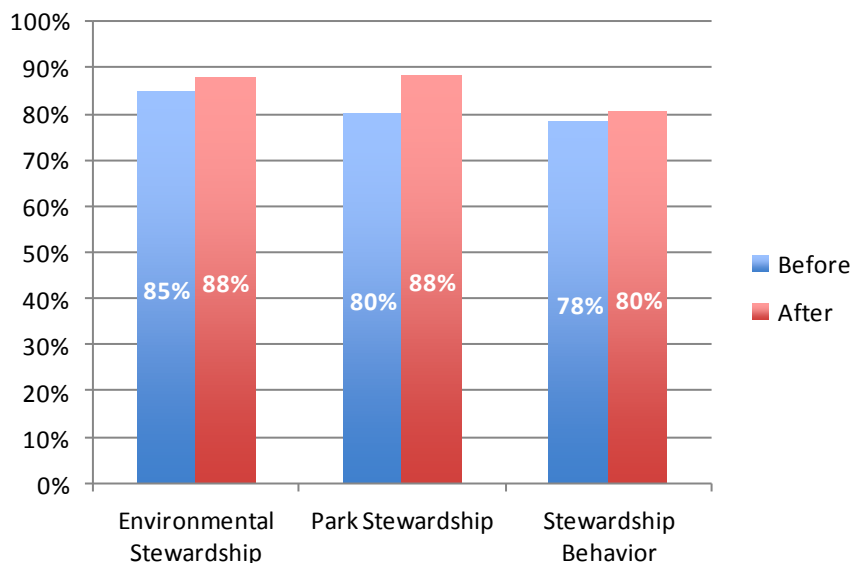


Questions measured students' knowledge and interest in learning about Everglades National Park and its natural and cultural resources.

II. Inspiring Environmental Stewardship

Everglades Environmental Education programs are designed to help create young champions for the environment. Results show that students learned more about the natural world around them and their role in maintaining, preserving, and protecting it for future generations—lessons they can apply throughout their lives.

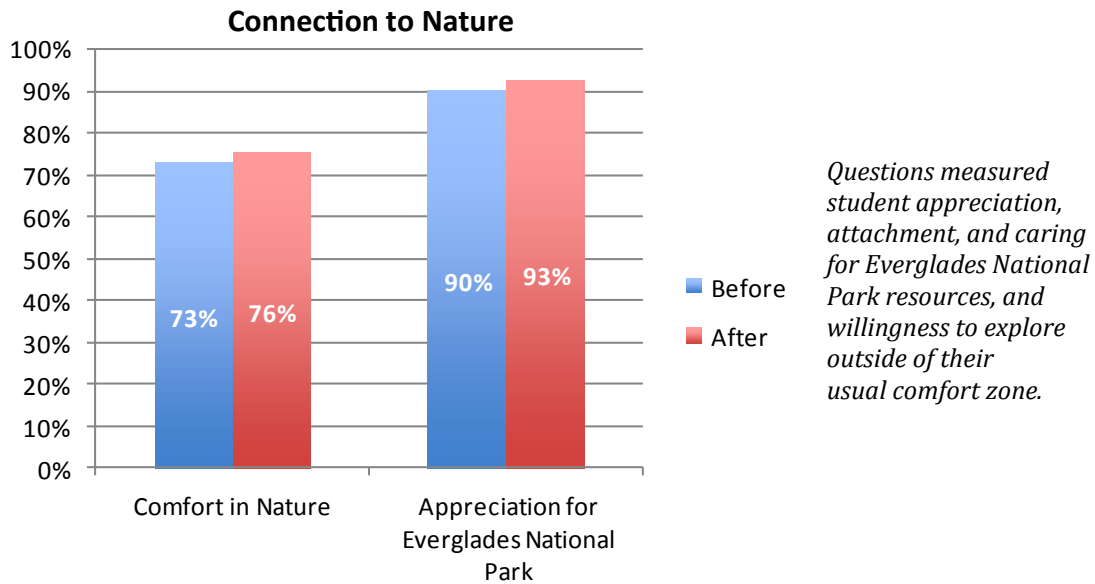
Stewardship



Questions measured students' environmental responsibility, their respect for Everglades National Park and their community, and their intentions to conserve natural resources at home.

III. Connecting Students to Nature

Students left Everglades National Park feeling more comfortable in natural environments and with an increased appreciation for the natural world around them.



Results show:

- Day and camping programs had a significantly positive influence on students' comfort level experiencing nature.



Supporting Teaching and Learning

Teachers who were surveyed agreed overwhelmingly—in addition to being closely tied to state curriculum standards, Everglades Environmental Education Programs are informative, relevant, and fun.

Teachers indicated that these programs resulted in improved student outcomes in the following areas:

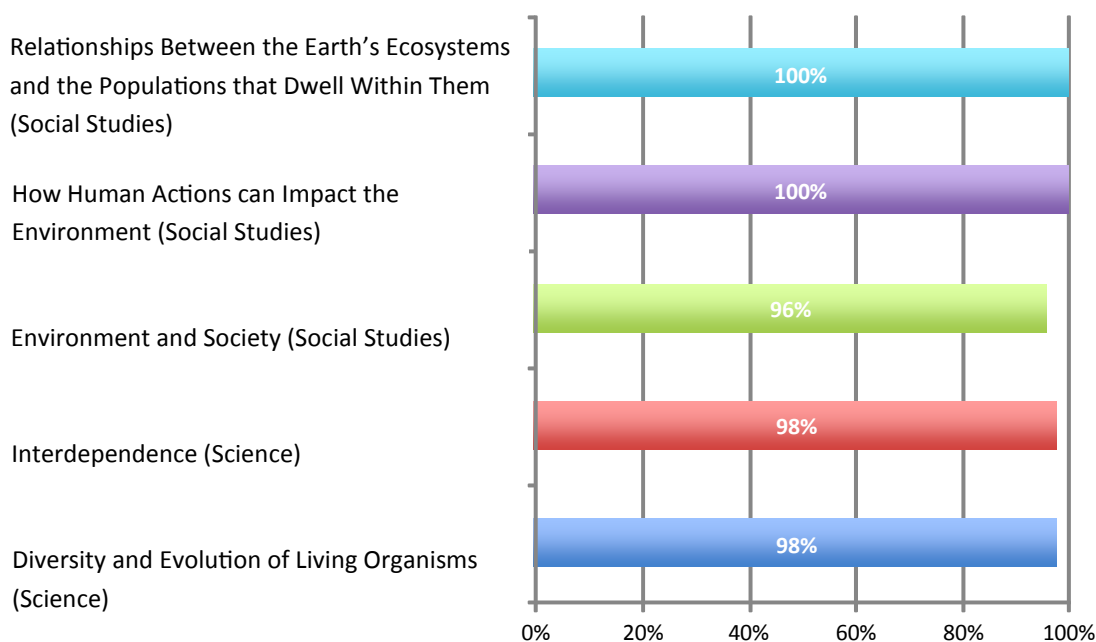
- academic performance
- scientific inquiry skills
- understanding ecological processes
- appreciation for the natural environment
- understanding the importance of biological diversity
- environmental stewardship

Results also suggest that Everglades Environmental Education Programs help Florida students reach key Next Generation Sunshine State Standards (NGSSS) benchmarks in science and social studies.

Results show:

- 98% of teachers agreed that the Everglades National Park experience is beneficial for their students.
- 96% agreed their students left motivated to better perform academically.

Percentage of Teachers Indicating a “Great Deal” or “Moderate” Increase in Students Meeting Curriculum Benchmarks

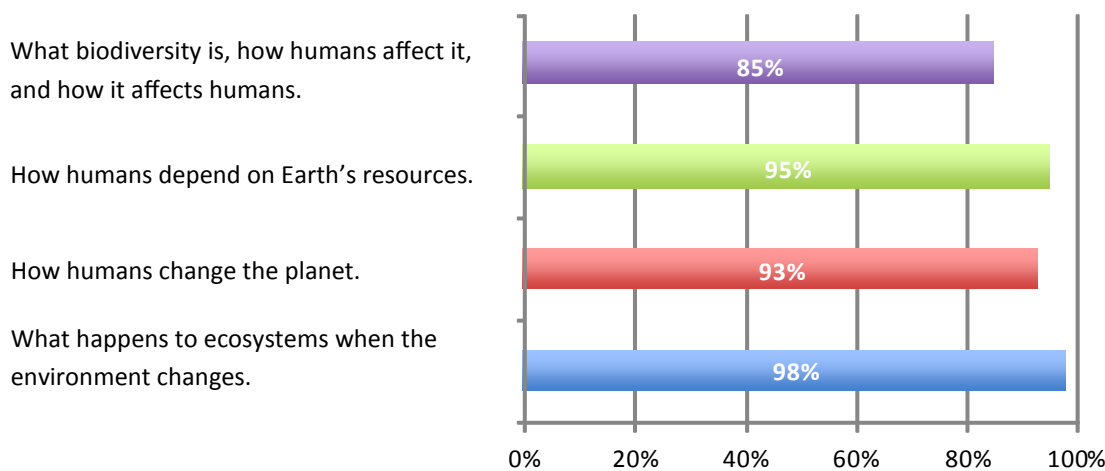


Achieving Core Benchmarks

Science, Technology, Engineering, and Mathematics (STEM) Disciplinary Core Benchmarks reflect knowledge about specific concepts. The Life Science and Earth and Space Sciences benchmarks included in the survey were selected based on their relevance to the curriculum.

A majority of teachers said Everglades Environmental Education Programs helped their students meet STEM standards.

Percentage of Teachers Indicating Increase in Students Meeting STEM Standards



"Keep it going! The children are the future guardians of the Everglades! My goal is to instill a sense of ownership and wonder and hope that they remember their fourth grade experience in the years to come." —4th Grade Teacher, Shark Valley Day Program

Results show:

- All teachers agreed program content was relevant to their students' lives.
- Everglades Environmental Education Programs address STEM standards.

Focusing on Diversity

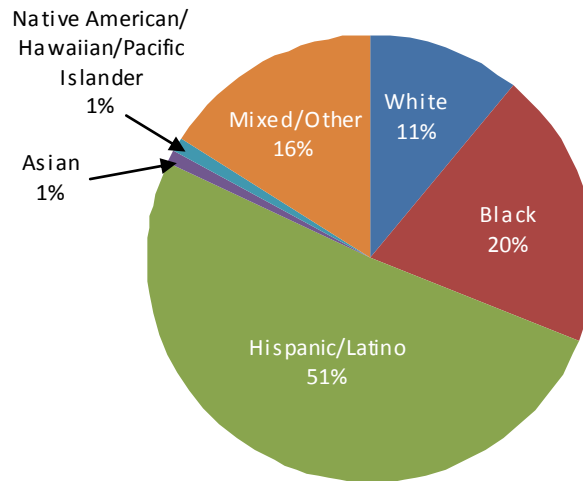
Everglades Environmental Education Programs serve a diverse population that reflects the racial and ethnic makeup of South Florida.

These programs reach a much more diverse population than other programs—for example, self-reporting statistics reveal that a vast majority of the park's general visiting population is White, not of Hispanic descent.

Results show:

- Everglades Environmental Education Programs serve a diverse population of students from South Florida.
- 87% of student visitors attending these programs identify themselves as Hispanic/Latino, Black, or Mixed Race.

Student Participants

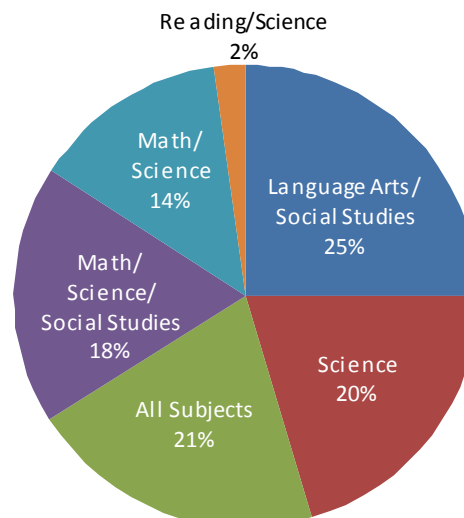


Teachers participating in Everglades Environmental Education Programs were mostly female (91%), and identified themselves as White, not of Hispanic descent (53%); Hispanic (28%); Black, not of Hispanic descent (14%); or Other (5%).

Seventy percent of responding teachers had ten or more years of teaching experience. A majority of responding teachers (75%) had some responsibility for teaching science, and a majority of respondents taught several or all subjects (80%).

Subjects Taught by Teachers

(n=44)



Creating a Legacy

Results show:

- Alumni remember specific information and details about the program, even decades later.
- Many alumni see a direct relationship between participation in the program and their education and career choices.
- Alumni consider themselves more environmentally aware as a result of participating in the program.
- Alumni found that their interests and behaviors changed after participating in the program.

Clemson University surveyed a select number of past participants of the park's camping program, specifically asking what participants remembered about the Camping Program and if they felt the program influenced future attitudes and choices. This survey found that not only do past participants fondly remember taking part in an Everglades Environmental Education Camping Program, but that participating in the program also had a lasting impact on their education, careers, behaviors, and interests later in life.

Specifically, some of these alumni noted that program participation sparked an interest in science that carried through to post-graduate studies and motivated them to pursue careers with an environmental focus. Furthermore, these alumni revealed that program participation made them more environmentally aware and gave them the confidence to participate more actively in outdoor recreation.



"The experience influenced my interests as a human."
—Camping program alumnus

In Summary: Key Findings

Key findings from the study demonstrate that Everglades Environmental Education programs:

- have a significant and positive influence on all outcomes of interest including content-related learning outcomes pertaining to the environment, science skills, ecological processes, appreciation for biodiversity, knowledge of Everglades National Park, and environmental stewardship.
- are high-quality and produce satisfied teachers who are better able to help their students meet Florida NGSSS benchmarks for science and social studies, as well as National STEM benchmarks and Disciplinary Core benchmarks.
- serve a diverse group of students that reflect the racial and ethnic makeup of Miami and South Florida.
- help students make connections between what they learned and experienced in these programs and the role that individual behaviors have on natural environments.



"I don't believe I'd appreciate the Everglades or the South Florida landscape as much as I do were it not for these trips to the park."
—Camping program alumnus



"It literally brings science to life for them in a way that we cannot hope to accomplish in a classroom no matter how much we might try. The first-hand experience is irreplaceable!" —5th Grade Teacher, Shark Valley Day Program



"The program provides an "up close and personal" experience like none other for all students. Having the rangers be the ones teaching them the information not only gives them direct access to the experts but also makes the students feel very special."

—5th Grade Teacher, Shark Valley Day Program



"I am now a 5th grade teacher and I take my students on this camping trip to the Everglades every year and I love doing it, and I love watching the students enjoy their time there and seeing how much they learn about their environment and the ecosystem that they live so close to."

— Camping program alumnus

For more information, or to schedule educational programming, contact:

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This study was conducted by the Institute for Parks at Clemson University in 2012.

